

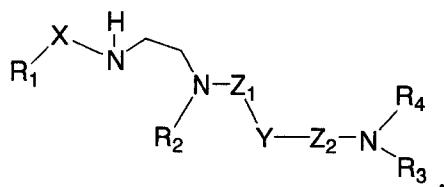
Amendments to the claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1-28. (Cancelled)

29. (Currently amended) A compound of the formula:



wherein

X is  $-\text{CH}_2-$ ,  $-\text{C}_2\text{H}_4-$ , or  $-\text{C}_3\text{H}_6-$ ,  ~~$-\text{CH}_2-\text{CH}=\text{CH}-$~~ ,  ~~$\text{CH}=\text{CH}-\text{CH}_2-$~~ ,  ~~$\text{C}(\text{O})-$~~ ,  ~~$\text{SO}_2-$~~ , or ~~deleted~~;

Y is aryl, heteroaryl,  $\text{C}_3\text{-C}_8$  cycloalkyl,  $\text{C}_5\text{-C}_8$  cycloalkenyl,  $\text{C}_3\text{-C}_8$  heterocycloalkyl, or  $\text{C}_5\text{-C}_8$  heterocycloalkenyl;

each of  $\text{Z}_1$  and  $\text{Z}_2$ , independently, is  $-\text{CH}_2-$ ,  $-\text{C}_2\text{H}_4-$ , or  $-\text{C}_3\text{H}_6-$ ,  ~~$-\text{CH}=\text{CH}-$~~ ,  ~~$\text{CH}=\text{N}-$~~ ,  ~~$-\text{CH}=\text{N}-\text{NR}-$~~ ,  ~~$\text{S}-$~~ ,  ~~$\text{O}-$~~ ,  ~~$\text{NR}-$~~ ,  ~~$\text{C}(\text{O})-$~~ , or  ~~$\text{SO}_2-$~~ ;

$\text{R}_1$  is  ~~$\text{H}$ ,  $\text{C}_4\text{-C}_{10}$  alkyl,  $\text{C}_2\text{-C}_{10}$  alkenyl,  $\text{C}_2\text{-C}_{10}$  alkynyl,  $\text{C}_3\text{-C}_8$  cycloalkyl,  $\text{C}_5\text{-C}_8$  cycloalkenyl,  $\text{C}_3\text{-C}_8$  heterocycloalkyl,  $\text{C}_5\text{-C}_8$  heterocycloalkenyl, aryl[[.]] or heteroaryl;~~

$\text{R}_2$  is  $-\text{A}_1\text{-B}_1\text{-D}_1\text{-E}_1$ ;

$\text{R}_3$  is  $-\text{A}_2\text{-B}_2\text{-D}_2\text{-E}_2$ , ~~deleted~~, or, together with  $\text{R}_4$ , is  $\text{C}_4\text{-C}_{20}$  cycloalkyl,  $\text{C}_4\text{-C}_{20}$  cycloalkenyl,  $\text{C}_4\text{-C}_{20}$  heterocycloalkyl, or  $\text{C}_4\text{-C}_{20}$  heterocycloalkenyl; provided that if  $\text{R}_2$  is ~~deleted~~,  $\text{Z}_2\text{-N}$  is  $\text{CH}=\text{N}$ ; and

$\text{R}_4$  is  $-\text{A}_3\text{-B}_3\text{-D}_3\text{-E}_3$  or, together with  $\text{R}_3$ , is  $\text{C}_4\text{-C}_{20}$  cycloalkyl,  $\text{C}_4\text{-C}_{20}$  cycloalkenyl,  $\text{C}_4\text{-C}_{20}$  heterocycloalkyl, or  $\text{C}_4\text{-C}_{20}$  heterocycloalkenyl;

in which each of  $A_1$ ,  $A_2$ , and  $A_3$ , independently, is  $-CH_2-$ ,  $-C_2H_4-$ ,  $-C_3H_6-$ ,  $-C_4H_8-$ , or  $-C_5H_{10}-$ ,  $-CH_2C(O)-$ ,  $C(O)CH_2-$ ,  $CH_2SO_2-$ ,  $SO_2CH_2-$ ,  $CH_2-CH=CH-$ ,  $CH=CH-$ ,  $CH_2-$ ,  $CH(CH_2OR)-$ ,  $CH(CH_2CH_2OR)-$ ,  $CH(COOR)-$ ,  $CH(CH_2COOR)-$ ,  $CH(C(O)NR_2)-$ , or deleted; each of  $B_1$ ,  $B_2$ , and  $B_3$ , independently, is  $-NR-$ ,  $-CH_2-$ , or deleted; each of  $D_1$ ,  $D_2$ , and  $D_3$ , independently, is  $-CH_2-$ ,  $-C_2H_4-$ , or  $-C_3H_6-$ ,  $-CH_2-$ ,  $CH=CH-$ ,  $CH=CH-CH_2-$ ,  $C(O)-$ ,  $SO_2-$ ,  $C(O)NR-$ ,  $C(S)NR-$ ,  $NR-C(O)-$ ,  $NR-C(S)-$ ,  $-CH(OR)-$ ,  $CH(CH_2OR)-$ ,  $CH(CH_2CH_2OR)-$ ,  $CH(COOR)-$ , 1,1 cyclopropylene, or deleted; and each of  $E_1$ ,  $E_2$ , and  $E_3$ , independently, is  $H$ ,  $C_1-C_{10}$  alkyl,  $C_2-C_{10}$  alkenyl,  $C_2-C_{10}$  alkynyl,  $C_3-C_8$  cycloalkyl,  $C_5-C_8$  cycloalkenyl,  $C_3-C_8$  heterocycloalkyl,  $C_5-C_8$  heterocycloalkenyl, aryl[[,]], or heteroaryl;

$A_2$  deleted;  $B_2$  deleted;  $D_2$  is deleted; and  $E_2$  is  $H$ ,  $C_3-C_8$  cycloalkyl,  $C_5-C_8$  cycloalkenyl,  $C_3-C_8$  heterocycloalkyl,  $C_5-C_8$  heterocycloalkenyl, aryl, or heteroaryl;

$A_3$  is  $-CH_2-$ ,  $-C_2H_4-$ ,  $-C_3H_6-$ ,  $-C_4H_8-$ ,  $-C_5H_{10}-$ , or deleted;  $B_3$  is deleted;  $D_3$  is deleted; and  $E_3$  is  $C_3-C_8$  cycloalkyl,  $C_5-C_8$  cycloalkenyl,  $C_3-C_8$  heterocycloalkyl,  $C_5-C_8$  heterocycloalkenyl, aryl, or heteroaryl; and

each  $R$ , independently, being  $H$  or  $C_1-C_{10}$  alkyl.

30-31. (Cancelled)

32. (Currently amended) The compound of claim [[31]] 29, wherein  $X$  is  $-CH_2-$  or  $-CH(CH_3)-$ ,  $Y$  is phenyl,  $Z_1$  is  $-CH_2-$  or  $-SO_2-$ , and  $Z_2$  is  $-CH_2-$  or  $-SO_2-$ .

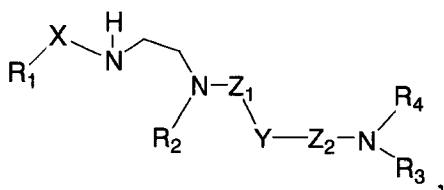
33-34. (Cancelled)

35. (Currently amended) The compound of claim 32, wherein  $R_3$  is  $-A_2-B_2-$ ,  $D_2-E_2$  or, together with  $R_4$ , is  $C_4-C_{20}$  heterocycloalkyl or  $C_4-C_{20}$  heterocycloalkenyl;  $A_1$  is  $-C_2H_4-$  or  $-CH(CH_3)CH_2-$ ;  $A_2$  is  $-C_2H_4-$  or deleted;  $A_3$  is  $-CH_2-$ ,  $-C_2H_4-$ ,  $-C_3H_6-$ ,  $-CH(CH_2OH)-$ ,  $CH(COOH)-$ ,  $-CH(CH_2OCH_3)-$ ,  $CH(CH_2CH_2OH)-$ ,  $CH(CH_2COOH)-$ , or deleted;  $B_1$  is  $-NH-$ ,  $-N(CH_2CH_2OH)-$ , or  $N(CH_2CH_3)-$ ;  $D_1$  is  $-CH_2-[,]-$  or

~~-CH(CH<sub>3</sub>), -CH(CH<sub>2</sub>OH), -CH(CH<sub>2</sub>CH<sub>2</sub>OH), or deleted; D<sub>2</sub> is -CH<sub>2</sub> or deleted; D<sub>3</sub> is -CH<sub>2</sub>, -CH(OH), -CH(COOH), 1,1-cyclopropylene, or deleted; E<sub>1</sub> is H, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, aryl, or heteroaryl; E<sub>2</sub> is H, aryl, or heteroaryl; and E<sub>3</sub> is aryl, heteroaryl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, or C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl.~~

36-46. (Cancelled)

47. (Currently amended) A pharmaceutical composition comprising a compound of the formula:



wherein

X is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, or -C<sub>3</sub>H<sub>6</sub>-, ~~CH<sub>2</sub>-CH=CH~~, ~~CH=CH-CH<sub>2</sub>~~, ~~C(O)~~, ~~SO<sub>2</sub>~~, or deleted;

Y is aryl, heteroaryl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, or C<sub>5</sub>-C<sub>8</sub> heterocycloalkenyl, or deleted; each of Z<sub>1</sub> and Z<sub>2</sub>, independently, is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, or -C<sub>3</sub>H<sub>6</sub>-, ~~CH=CH~~, ~~CH=N~~, ~~CH=N-NR~~, ~~S~~, ~~O~~, ~~NR~~, ~~C(O)~~, or ~~SO<sub>2</sub>~~;

R<sub>1</sub> is H, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>8</sub> heterocycloalkenyl, aryl[[.]] or heteroaryl;

R<sub>2</sub> is -A<sub>1</sub>-B<sub>1</sub>-D<sub>1</sub>-E<sub>1</sub>;

R<sub>3</sub> is -A<sub>2</sub>-B<sub>2</sub>-D<sub>2</sub>-E<sub>2</sub>, deleted, or, together with R<sub>4</sub>, is C<sub>4</sub>-C<sub>20</sub> cycloalkyl, C<sub>4</sub>-C<sub>20</sub> cycloalkenyl, C<sub>4</sub>-C<sub>20</sub> heterocycloalkyl, or C<sub>4</sub>-C<sub>20</sub> heterocycloalkenyl; provided that if R<sub>3</sub> is deleted, Z<sub>2</sub>-N is CH=N; and

R<sub>4</sub> is -A<sub>3</sub>-B<sub>3</sub>-D<sub>3</sub>-E<sub>3</sub> or, together with R<sub>3</sub>, is C<sub>4</sub>-C<sub>20</sub> cycloalkyl, C<sub>4</sub>-C<sub>20</sub> cycloalkenyl, C<sub>4</sub>-C<sub>20</sub> heterocycloalkyl, or C<sub>4</sub>-C<sub>20</sub> heterocycloalkenyl;

in which each of A<sub>1</sub>, A<sub>2</sub>, and A<sub>3</sub>, independently, is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, -C<sub>3</sub>H<sub>6</sub>-, -C<sub>4</sub>H<sub>8</sub>-, or -C<sub>5</sub>H<sub>10</sub>-, ~~CH<sub>2</sub>C(O)~~, ~~C(O)CH<sub>2</sub>~~, ~~CH<sub>2</sub>SO<sub>2</sub>~~, ~~SO<sub>2</sub>CH<sub>2</sub>~~, ~~CH<sub>2</sub>-CH=CH~~, ~~CH=CH~~

~~CH<sub>2</sub>, CH(CH<sub>2</sub>OR), CH(CH<sub>2</sub>CH<sub>2</sub>OR), CH(COOR), CH(CH<sub>2</sub>COOR), CH(C(O)NR<sub>2</sub>), or deleted; each of B<sub>1</sub>, B<sub>2</sub>, and B<sub>3</sub>, independently, is -NR-, -CH<sub>2</sub>-, or deleted; each of D<sub>1</sub>, D<sub>2</sub>, and D<sub>3</sub>, independently, is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, or -C<sub>3</sub>H<sub>6</sub>-, -CH<sub>2</sub>-CH=CH, CH=CH-CH<sub>2</sub>, C(O), SO<sub>2</sub>, C(O)-NR-, C(S)-NR-, NR-C(O)-, NR-C(S)-, -CH(OR), CH(CH<sub>2</sub>OR), CH(CH<sub>2</sub>CH<sub>2</sub>OR), CH(COOR), 1,1-cyclopropylene, or deleted; and each of E<sub>1</sub>, E<sub>2</sub>, and E<sub>3</sub>, independently, is H, C<sub>4</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>2</sub>-C<sub>10</sub> alkynyl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>8</sub> heterocycloalkenyl, aryl[[,]] or heteroaryl;~~

A<sub>2</sub> deleted; B<sub>2</sub> deleted; D<sub>2</sub> is deleted; and E<sub>2</sub> is H, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>8</sub> heterocycloalkenyl, aryl, or heteroaryl;

A<sub>3</sub> is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, -C<sub>3</sub>H<sub>6</sub>-, -C<sub>4</sub>H<sub>8</sub>-, -C<sub>5</sub>H<sub>10</sub>-, or deleted; B<sub>3</sub> is deleted; D<sub>3</sub> is deleted; and E<sub>3</sub> is C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>8</sub> heterocycloalkenyl, aryl, or heteroaryl; and

a pharmaceutically acceptable carrier.

48-50. (Cancelled)

51. (Currently amended) The composition of claim [[49]] 47, wherein X is -CH<sub>2</sub>- or -CH(CH<sub>3</sub>)-, Y is phenyl, Z<sub>1</sub> is -CH<sub>2</sub>- or -SO<sub>2</sub>-, and Z<sub>2</sub> is -CH<sub>2</sub>- or -SO<sub>2</sub>-.

52-54. (Cancelled)

55. (Currently amended) The composition of claim 51, wherein R<sub>3</sub> is -A<sub>2</sub>-B<sub>2</sub>-D<sub>2</sub>-E<sub>2</sub> or, together with R<sub>4</sub>, is C<sub>4</sub>-C<sub>20</sub> heterocycloalkyl or C<sub>4</sub>-C<sub>20</sub> heterocycloalkenyl; A<sub>1</sub> is -C<sub>2</sub>H<sub>4</sub>- or -CH(CH<sub>3</sub>)CH<sub>2</sub>; A<sub>2</sub> is -C<sub>2</sub>H<sub>4</sub>- or deleted; A<sub>3</sub> is -CH<sub>2</sub>-, -C<sub>2</sub>H<sub>4</sub>-, -C<sub>3</sub>H<sub>6</sub>-, -CH(CH<sub>2</sub>OH), -CH(COOH), -CH(CH<sub>2</sub>OCH<sub>3</sub>), -CH(CH<sub>2</sub>CH<sub>2</sub>OH), -CH(CH<sub>2</sub>COOH), or deleted; B<sub>1</sub> is -NH-, -N(CH<sub>2</sub>CH<sub>2</sub>OH)-, or -N(CH<sub>2</sub>CH<sub>3</sub>); D<sub>1</sub> is -CH<sub>2</sub>-[[,]] or -CH(CH<sub>3</sub>), -CH(CH<sub>2</sub>OH), -CH(CH<sub>2</sub>CH<sub>2</sub>OH), or deleted; D<sub>2</sub> is -CH<sub>2</sub>- or deleted; D<sub>3</sub> is -CH<sub>2</sub>- or -CH(OH)-, -CH(COOH), 1,1-cyclopropylene, or deleted; E<sub>1</sub> is H, C<sub>3</sub>-C<sub>8</sub>

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~~heterocycloalkyl, aryl, or heteroaryl; E<sub>2</sub> is H, aryl, or heteroaryl; and E<sub>3</sub> is aryl, heteroaryl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, C<sub>5</sub>-C<sub>8</sub> cycloalkenyl, or C<sub>3</sub>-C<sub>8</sub> heterocycloalkyl.~~

56-57. (Cancelled)